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ABSTRACT

Disability increases and decreases among selected families of different ethnic types in metropolitan and nonmetropolitan areas were investigated relative to increases in: education of the homemaker, level of family income and occupation of main income source, and size of family. Sample populations were metropolitan Texas blacks (n=294), Hawaiian ethnics (n=202), and Wisconsin whites (n=208) and nonmetropolitan Texas blacks (n=259), California Spanish-speaking farm migrants (n=169), and Vermont whites (n=218). Female homemakers between the ages of 18 and 65 with children in the household were interviewed during 1970-71 and were asked if any in the family were sick all the time or were in any way disabled. Findings indicated there were no consistent patterns in metropolitan and nonmetropolitan differences but that: metropolitan samples had higher family disability index means in the lowest educational levels, while nonmetropolitan samples had higher means in the highest educational levels; when income levels were controlled, metropolitan family disability index scores were higher than those of nonmetropolitan families; and when size of family was controlled, family disability index scores for metropolitan samples at the first level of family size were lower than those of nonmetropolitan samples in two out of three cases. (JC)

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THE INFLUENCE OF PLACE OF RESIDENCE ON FAMILY DISABILITY AMONG SELECTED POPULATIONS: SOUTHERN BLACKS, WESTERN MEXICAN AMERICANS, HAWAIIAN ETHNICS, AND NORTHEASTERN WHITES*

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ABSTRACT

The purpose of this study is to explore to what extent, if any, does metropolitan and nonmetropolitan place of residence location cause variations in family disability when examined by family attributes such as education of homemaker, level of family income, occupation of main income source, and family size. Sample populations utilized for this study are metropolitan and nonmetropolitan Blacks in the state of Texas, metropolitan and nonmetropolitan Whites in the states of Wisconsin and Vermont, metropolitan Hawaiian Ethnics in the state of Hawaii, and nonmetropolitan Spanish-speaking farm migrants in California. Data for the study were collected as a part of an interstate, interdisciplinary USDA study (NC-90).

Findings indicate that metropolitan samples as opposed to nonmetropolitan samples have higher family disability means in the lowest levels of education while nonmetropolitan samples have higher means in the highest levels of education. In six out of eight cases, metropolitan (Texas and Wisconsin only) family disability index means were higher than nonmetropolitan family disability index means (Texas and Vermont only). Of all samples in the study, only metropolitan Texas experienced a negative relationship between family disability and occupational level of the main income source; all others were erratically patterned. Family disability index scores for the metropolitan samples at the first level of family size were, as a whole, lower than those of the nonmetropolitan samples in two out of three cases.

THE PROBLEM

We are aware of effects of disability on individuals and the family as a unit. Research points out how the occurrence of disability may result in role disruption, strained interpersonal relationships, and other phenomena which may have profoundly negative effects on human lives (Gibson and Ludwig, 1968:54; Fink, 1968).

Although little empirical evidence exists which gives factors which may influence the rate of disability, there are certain factors which are believed to influence the rate of disability. These factors include demographic and social variables such as age, sex, income, education, place of residence, cultural heritage and perception of illness. A previous study by Jackson and Kuvlesky (1973) explored the extent to which metropolitan and nonmetropolitan place of residence affected the incidence and magnitude of disability. This study will extend the research mentioned by exploring metropolitan-nonmetropolitan differences when tested on the following variables: education of homemaker, level of family income, occupation of main income source, and size of family.

Education is considered as a major variable here because of the high degree of influence that it has on socio-economic status. Education determines to a great extent the type of jobs available to wage earners. This, in turn, determines the level of wages earned. Horton and Leslie (1965:3) state that the unemployment problem is primarily an educational problem since many times one cannot be gainfully employed because of

educational handicaps. Education may also play an important role in determining how information concerning illness and treatment is assimilated.

Since the populations to be studied are primarily minority groups, and, since persons who are members of minority groups are usually underprivileged in terms of income, level of income is also considered here. Level of family income has been demonstrated to have a differential effect upon a family's access to health services.

> Low income is often a deterrent to utilization of health care. Low income families are often inadequately immunized against preventable disease. They use other preventative medical services less than do high income families and do not get a proportionate amount of treatment hospital service (Stitt; 1965:104).

In a study conducted by Ashley (1961:59), it was found that various attitudes and values played an important role in determining whether families took advantage of health services. The lowest income group in the study gave financial reasons for not taking advantage of health services.

Robertson, in his study of race and medical care, found that race or ethnicity also may determine the extent to which persons take advantage of health services. He stated that non-whites are reported to avail themselves of free health examinations more often than whites (1967:353). Past research indicates that cultural heritage may also bear upon how ethnicity affects one's desire to seek health, medical, and hospital services. Clark (1952:2) mentions the stress which occurs when individuals from one culture with different beliefs about health, illness, and the prevention and cure of disease come to live as members of a minority group within another culture which

has a vastly different medical system. Cultural heritage may also determine one's perception of an illness or disability. Because the "symptom" or condition is omnipresent (it always was and always will be) there exists for such populations or cultures no frame of reference according to which it could be considered a deviation (Zola:1966).

In a manner similar to the other variables, place of residence location affects accessibility to health services and facilities. Navarro (1971) points out how place of residence location affects accessibility to health services. As you move outward from the center of a city, health services decline since there is a decrease in the number of specialists, physicians, and hospital beds per 1,000 people. Rural areas, in addition, receive less or poorer medical care than urban areas. (Rural people in the more sparsely populated areas have only about one-half the access to physicians, nurses, dentists, hospital beds, and other health resources when compared with the rest of the nation.) Health problems of rural areas are further compounded by environmental hazards, and aging population, and a high degree of poverty (Bible, 1973:1).

Horton and Leslie (1965:589) point out that populations living in medical shortage areas receive less or poorer medical care than those living in other areas. It is further stated that Southern states lacked an adequate number of physicians, dentists, and nurses when compared with Northern Central states (which have access to a greater number) and Northern states (which had the highest numbers of physicians, dentists, and nurses per number of patients of the three regions).

The fact that the variables included in this research have been shown to affect other phases of family life leads to the question of whether these variables affect the magnitude of family disability. The major task of this research, then, is to supply much needed information concerning the impact of metropolitan-nonmetropolitan place of residence on disability when tested by education of the homemaker, level of family income, occupation of main income source, and size of family.

RESEARCH OBJECTIVES

Data from a recent USDA-CSRS regional study of low income families provide the basis for this investigation.*

The following question will guide the analysis:

1. Will metropolitan-nonmetropolitan differences in family disability increase or decrease as:
   a. the education of the homemaker increases?
   b. the level of family income and occupation of main income source increase?
   c. the size of the family increases?

CONCEPTS AND OPERATIONAL DEFINITIONS

Disability is defined as the inability of an individual to assume his expected role. As an example, a child five years or younger is expected to perform the role of playing. As he grows older (to age 18 and sometimes to early 20's), he is expected to attend formal school. After formal schooling is

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*This paper contributes to USDA and is also a contribution to CSRS Regional Project NC-90.

completed or terminated to age 65, the role prescription centers around some type of employment and, in most cases, parental roles. At the onset of retirement age, he is expected to retire or continue working. If these role prescriptions are not fulfilled, he is labeled disabled. Using this measure of disability, the degrees of disability are determined by the degree of which one is able to fulfill his role prescription.

Individual disability has been defined as any abnormality of personality or biological structure of process that produces stress for the individual in his adjustment to himself or his external environment (Kulvesky, Byrd and Taft, 1973:7). Whenever the stress which results from a family member's inability to assume expected roles impedes the maintenance of integration in the family system and/or negatively influences the unit's capability for adaptation to the total environment, the resulting patterns of interaction are called family disability.

Ethnic groups are defined as groups in which members share a common cultural heritage which is different from that of the majority in the United States. The ethnic groups to be included in the study are Southern Blacks in Texas, Mexican Americans in California, Hawaiian Ethnics, and Whites in Vermont and Wisconsin.

Metropolitan and nonmetropolitan areas were defined in accordance with the 1970 Census User's Guide, Part I, (p. 83-84). Metropolitan refers to persons residing in Standard Metropolitan Statistical Areas and nonmetropolitan refers to those not residing in a Standard Metropolitan Statistical Area even though they may live in a city. Criteria for these differentiations are given.

INSTRUMENTS AND MEASURES

A brief description of the indicators used in this analysis are provided below.

Disability

The stimulus question for disability was "Is anyone in this family sick all the time or disabled in any way?" If the respondent said there was, she was asked to describe the seriousness of the disability in terms of school or work performance.

FOR EACH PRE-SCHOOLER ASK:
Which of the following best describes his (her) ability to play?
5. Not able to take part at all in ordinary play with other children.
4. Able to play with other children but limited in amount of kind of play.
3. Not limited in any of the preceding ways.

FOR EACH CHILD IN SCHOOL ASK:
Which of the following best describes his (her) ability to work?
5. Not able to work (or keep house) at all.
4. Able to work (keep house) but limited in kind or amount of work.
3. Able to work (keep house) but limited in other acitivites.
2. Not limited in any of the preceding ways. (NC-90 Patterns of Family Living Questionnaire, 1970:3).

The responses were coded "1" if the person was not disabled and "2" through "5" for the various degrees of disability indicated above. With "1" being the lowest degree of disability (none) and "5" being the highest (not able to work, et cetera), the distinctions in the instrument were kept for the measures in this analysis.

Taft and Byrd (1962:11-12) devised the method used to derive the family disability index which was used in this analysis. The family disability index was a composite index weighted for family size and degree of disability and converted to a zero to 99.0 scale. (A score of 99.0 was the highest possible disability

score while one of 0.0 was the lowest possible score). Individual disability codes used in the coding of raw data were recoded 0-4 by subtracting one from each previous code. The family disability index was computed for each family by summing the recoded degree of disability for each family and dividing by the number of members in the family. This figure was then multiplied by 25 to convert it to a scale of 0.0 to 99.0 (This was done to expand the spread of measured differences and to make the index scores easier to interpret). In cases where a family member did not have a number coded for degree of disability, the sum was divided by the number of family members who had numbers coded for the degree disability.

An apparent weakness of the disability measure is that no objective criteria is used to determine actual physical, mental, or emotional problems. Instead, the homemaker's subjective evaluation of the member's ability to perform was relied upon. The homemaker is probably the one who decides who is well enough to go to play, go to school or work and she probably exerts her influence to keep family members at home when she believes they are too ill.

Ethnic Identity

Ethnicity was determined by interviewers' classification of respondents based on actual, direct observation. There is no objective criteria used to determine actual ethnic composition of the respondents since the subjective evaluation of the interviewer was relied upon.

Education of Homemaker

Homemakers were asked to indicate the last school grade that she completed. Possible responses were: (a) 100=kindergarten, (b) 01-16=first grade thru senior in college, (c) 17=graduate school, (d) 18=pre-school, not kindergarten (such as nursery school, Headstart, etc.), (e) 20-no schooling, (f) don't know, (g) special education classes ungraded, and (h) job training course currently.

Level of Family Income

Total family income was computed by summing the money income received from all sources plus paycheck deducations added back in to give disposable income.

Levels of family income were: (1) under $3,000, (2) $3,000-$5,999, (3) $6,000-$9,999, and (4) $10,000 and over. Family income of $3,000 or less considered inadequate; an income of $3,000-$5,999 is considered marginal; an income of $6,000 is considered moderate, and an income of $10,000 or over is considered adequate (Taft and Byrd, 1973:13).

Occupation of Main Income Source

Homemakers were asked who was the main income source. These family members had possible codes which were: (a) 1-respondent, (b) 2-spouse, (c) 3-son/daughter, (d) 4-grandchild, (e) 5-parent, (f) 6-parent-in-law, (g) 7-brother/sister, (h) 8-brother/sister-in-law, (i) 9-son/daughter-in-law, (j) 10-grandparents/great aunt/great uncle, (k) 11-aunt/uncle, (l) 12-nephews/nieces, (m) 13-cousins, (n) 14-foster children,

(o) 15-step children, (p) 16-other relatives, (q) 17-friends, and (r) 18-male companions.

Occupations were categorized in the following manner: (1) Not employed; (2) Unskilled blue collar, (3) Semi-skilled blue collar, (4) Skilled blue collar, (5) Low prestige white collar, and (6) Professional, technical, and self employed.

SELECTION AND INTERVIEWING OF RESPONDENTS

Respondents for the study were female homemakers between the ages of 18 (younger if they were mothers) and 65 having children in the household. Interviews were conducted during 1970 and were completed in 1971. Table 1 summarizes the disposition of the families contacted during the interviewing process. For a more detailed description of the selection and interviewing process, see Jackson and Kuvlesky (1973).

ANALYSIS AND FINDINGS

The following question will guide the analysis:

Will metropolitan-nonmetropolitan mean disability scores increase or decrease as:

(a) education of the homemaker increases?

(b) the level of family income and occupational status of main income source increase?

(c) size of family increases?

The analysis will focus on mean disability scores of families affected by disability. A tabular presentation and findings will be presented and discussed in the text.

The analysis will be organized into two parts as indicated by the questions which guide the analysis. In the first part,

Table 1. Summary Interview Table on the Six Study Populations by Metropolitan-Nonmetropolitan Place of Residence Location.

	Study Populations					
	Metropolitan			Nonmetropolitan		
	Texas	Hawaii	Wisconsin	Texas	California	Vermont
Number of Interviewers	12	5	5	6	17	7
Number Ineligible	500	189	755	287	21	233
Number of Interviews Completed	294	202	208	259	169	218
Refusals and Others*	8	159	21	13	45	124

*Includes evasions, vacant houses, respondents did not speak English, homemaker was never able to be contacted, e.g., because they were ill, because they evaded the interviewer, because they were away for the summer.

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the writer explored whether or not metropolitan-nonmetropolitan place of residence location influences disability when examined by the following variables: 1) education of the homemaker, 2) level of family income, 3) occupational status of the main income source, and 4) size of the family.

The method of statistical test used in this study was a one-way analysis of variance for two populations. Metropolitan-nonmetropolitan comparisons were made as follows: metropolitan and nonmetropolitan blacks in the state of Texas, metropolitan whites in the state of Wisconsin, and nonmetropolitan whites in the state of Vermont. Blacks and whites were grouped separately forming two populations to eliminate the influence of ethnicity.

Hawaiian ethnics and California Spanish-speaking farm migrants were used in "across the board" comparisons and were not subjected to any statistical tests since these groups were so dissimilar and because of the small number of respondents in the California sample.

Results of the statistical tests were insignificant due to the low members in the sample population. Statistical tests were without exception, negative. No consistent patterns in metropolitan-nonmetropolitan differences were observed. However the following phenomena were observed when certain controls were implemented: Level of Family Disability and Education of Homemaker (Table 2).

The following observations were made with regard to family disability and metropolitan-nonmetropolitan place of residence location when education of homemaker was controlled:

Table 2. Family Disability Index Means for Educational Levels of Homemakers by Metropolitan-Nonmetropolitan Place of Residence Location.

	Metropolitan			Nonmetropolitan		
Educational Levels	Texas (N=67)	Hawaii (N=72)	Wisconsin (N=23)	Texas (N=7[illegible])	California (N=7)	Vermont (N=37)
Less than 8 Grades	27.5	23.1	21.6	19.8	14.4	19.8
8 Grades	19.6	26.5	8.1	18.2	----	16.5
9 - 11 Grades	20.5	18.0	17.5	13.0	----	10.5
12 Grades	12.0	14.2	15.5	20.3	----	15.8
College or Graduate Study	20.0	16.0	20.8	20.3	10.1	25.0

Statistical test indicated that there were no significant differences in mean scores when intragroup comparisons were made. Where information was not available no comparisons were made.

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1. Metropolitan samples experienced no patterned relationship between disability and education. However, the nonmetropolitan sample experienced a negative relationship between disability and education at the lowest three levels of education.

2. Metropolitan samples (Texas and Wisconsin only) as opposed to non-metropolitan samples (Texas and Vermont) have higher family disability index means in the lowest levels of education while nonmetropolitan samples have higher means in the highest levels of education.

Family Disability and Income Levels of Main Income Source (Table 3)

The following associations were observed with regard to family disability and metropolitan-nonmetropolitan place of residence location when income of the main income source was controlled:

1. From an "across the board" comparison by income levels it was observed that in five of six cases (California excepted) that the lowest income level experienced the highest family disability index scores. Nonmetropolitan samples experienced more severe family disability in the lowest income level. At all other levels, family disability decreased as income increased.

2. Family disability index scores decreased consistently as income increased with the exception of the California and Hawaii samples.

3. In six out of eight cases, metropolitan (Texas and Wisconsin only) family disability index means were higher than nonmetropolitan family disability index means (Texas and Vermont only).

Family Disability and Occupational Level of Main Income Source (Table 4)

When occupational level of the main income source was controlled, the following observations were made:

1. Of all samples in the study, only metropolitan Texas experienced a negative relationship between family disability and occupational level of main

Table 3. Family Disability Index Means for Income Levels of Main Income Source by Metropolitan-Nonmetropolitan Place of Residence Location.

Income Level:	Metropolitan			Nonmetropolitan		
	Texas	Hawaii	Wisconsin	Texas	California	Vermont
	(N=67)	(N=72)	(N=75)	(N=75)	(N=7)	(N=37)
Under $3,000	23.6	20.7	21.2	23.8	3.5	27.0
$3,000 - $5,999	19.6	18.2	16.3	15.6	17.9	15.5
$6,000 - $9,999	15.6	19.3	15.0	13.3	9.1	14.6
$10,000 and over	5.9	13.5	14.5	----	16.6	12.9

Statistical test indicated that there were no significant differences in mean scores when intragroup comparisons were made. Where information was not available no comparisons were made.

Table 4. Family Disability Index Means for Occupational Level of Main Income Source by Metropolitan-Nonmetropolitan Place of Residence Location.

Occupational Level:	Metropolitan			Nonmetropolitan		
	Texas (N=67)	Hawaii (N=72)	Wisconsin (N=23)	Texas (N=75)	California (N=7)	Vermont (N=37)
1. Not Employed	24.8	19.7	16.8	22.2	10.0	23.1
2. Unskilled Blue Collar	16.7	22.1	----	19.4	13.7	17.2
3. Semi-skilled Blue Collar	14.9	14.4	----	13.5	----	12.5
4. Skilled Blue Collar	14.5	12.7	----	16.2	----	16.6
5. Low Prestige White Collar	14.6	16.4	----	16.6	----	20.0
6. Professional Technical and Self Employed	----	15.4	----	19.5	----	11.5

Statistical test indicated that there were no significant differences in mean scores when intragroup comparisons were made. Where information was not available no comparisons were made.

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income source. Nonmetropolitan Texas experienced a "U" distribution while Hawaii and Vermont experienced "S" distributions. No common patterns were observed.

2. There were no ethnic differences in degree of disability. Metropolitan Texas Blacks differ from Hawaiian ethnics in distribution of disability on occupational levels in that metropolitan blacks exhibited a negative distribution while Hawaiian ethnics exhibited an "S" distribution. In the nonmetropolitan sample (Texas and Vermont) family disability decreased through the lowest three levels.

Family Disability and Family Size (Table 5)

The following observations were made with regard to family disability and metropolitan-nonmetropolitan place of residence location when family size was controlled:

1. Family disability index scores decreased in four out of six cases as family size increased.

2. Family disability index scores for the metropolitan samples at the first level of family size were, as a whole, lower than those of the nonmetropolitan samples in two out of three cases.

3. Family disability was at its lowest in the third level and at its highest at the first level. Hawaiian ethnics and California Spanish-speaking farm migrants were the exceptions in this trend and these two samples exhibited "U" distributions which were opposite in direction.

DISCUSSION

Various studies have indicated that demographic and socio-economic variables determine to a great extent the ways in which families function. This study is viewed as an extension of previous research dealing with the disabled family and as a resource for the formulation of hypotheses for future research. The study focuses on family disability as it is influenced by

Table 5. Family Disability Index Means for Size of Family by Metropolitan-Nonmetropolitan Place of Residence Location.

Family Size:	Metropolitan			Nonmetropolitan		
	Texas	Hawaii	Wisconsin	Texas	California	Vermont
	(N=67)	(N=72)	(N=23)	(N=75)	(N=7)	(N=37)
4 or less	25.0	16.8	20.8	23.1	25.0	21.7
5 - 8	17.2	18.5	14.1	16.6	7.5	14.0
9 or more	9.0	15.8	8.7	7.9	18.5	12.7

Statistical test indicated that there were no significant differences in mean scores when intragroup comparisons were made.

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metropolitan-nonmetropolitan place of residence when education of the homemaker, level of family income, occupation of main income source, and family size are controlled.

Since the statistical tests used in this study indicated that differences which were observed were not significant, we can only draw implications from the data presented. Because of the selected study units and the small number of cases comprising samples we only speculate as to how these phenomena hold true for other populations in other regions.

The data indicated that there were no consistent patterns in metropolitan-nonmetropolitan differences. However, it should be noted that:

1. When education of the homemaker was controlled, metropolitan samples as opposed to nonmetropolitan samples had higher family disability index means in the lowest educational levels while nonmetropolitan samples have higher means in the highest educational levels.

2. When income levels of the main income source was controlled, metropolitan family disability index scores in six of eight cases, were higher than nonmetropolitan family disability index scores.

3. When size of family was controlled, family disability index scores for the metropolitan samples at the first level of family size were lower than those of the nonmetropolitan samples in two out of three cases.

In this investigation metropolitan-nonmetropolitan place of residence location alone produced no consistent patterns in the incidence of family disability. Additional investigations into this area are needed to aid in theorizing about family disability. New questions must be asked; new definitions must be formulated. It may also be advantageous to be more inclusive in further research. Should family attributes such as stage

in family life cycle, number of parents present in the family, size of family (including those who are away but still perform family functions), and other variables be included in the study as independent variables? Should there be a more refined measure of family disability --- one that takes into account the fact that individual disability does not necessarily result in family disability? The questions are as varied and as numerous as the imagination allows them to be.

This study has been of utility in two instances. First, it showed that, contrary to previous assertions, the independent variables used in this study are not as efficacious as we are inclined to think. Second, it provided implications which can be used in further research investigations.

APPENDIX

FOOTNOTES

1/ This study is an extension of a previous study "Families Under Stress: An Interethnic Comparison of Disability Among Selected Metropolitan and Nonmetropolitan Families." Comparisons were made strictly on the basis of metropolitan or nonmetropolitan place of residence location. This study, using the same study populations, will extend the previous study by making comparisons on the basis of metropolitan and nonmetropolitan place of residence location but will also utilize the variables 1) education of homemaker, 2) level of family income, 3) occupational status of the main income source and 4) size of the family.

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